

METHOD AND APPARATUS FOR MEASURING  
NETWORK DATA PACKET DELAY, JITTER AND LOSS

ABSTRACT OF THE DISCLOSURE

5 A method of monitoring performance of an Internet protocol (IP) network is described. The method includes generating a timing probe data packet to be sent over the network, the timing probe data packet containing at least a send time of day (STOD) stamp for a sender of the timing probe data packet. The method further includes sending the timing probe data packet over the network from the sender to a receiver. Finally, the method further includes analyzing  
10 the timing probe data packet contents including at least the STOD stamp as a performance measure of the network. Between the sending and the analyzing, there is further included writing into the timing probe data packet at the receiver data including at least a receive time of day (RTOD) stamp, and echoing the timing probe data packet by the receiver thereof. Thus, the sender of the timing probe data packet performs the analysis based upon the STOD stamp and  
15 the RTOD stamp.

Preferably, the generating is performed in such manner that the timing probe data packet further contains a send sequence stamp, wherein the writing further includes a receive sequence stamp, and wherein the analysis is based further upon the send sequence stamp and the receive sequence stamp. The analysis may include first calculating the difference  
20 between the STOD stamp and the RTOD stamp as a latency performance measure of the network. Most preferably, the generating, sending and analyzing are repeated for at least two successive ones of such timing probe data packets.

The analysis then includes three further calculations. First, the difference between the STOD stamp and the RTOD stamp for a first one of the successive ones of such timing probe  
25 data packets is calculated. Second, the difference between the STOD stamp and the RTOD stamp for a second one of the successive ones of such timing probe data packets is calculated. Finally, the difference between the first and second calculated differences is calculated as an inter-packet jitter performance measure of the network.